Amendments to the Specification:

Please replace previously amended paragraph [0042] with the following amended paragraph.

[0042] In operation of the sequential catheter flush system 400; the nurse connects the system to catheter hub 410 (if it is not pre-connected or integral with the catheter). The nurse then flushes ("charges") the system. If the proximal terminal is not a positive pressure valve or if the valve is simply threaded rather than permanently attached, the first (most proximal) clamp 401 is closed. After this, if no medication has been infused in the interim, each sequential clamp (402 then 403) is closed at 8 hr. intervals to flush the catheter 409 every shift (this interval may be prolonged with specialized formulations as discussed previously). After 24 hours, or eight hours after the last catheter-flushing clamp has been closed, all the catheter-flushing clamps are opened and the system 400 is "recharged" by flushing the system 400 with saline through the proximal terminal 406. The system 400 is now ready to provide another 24 hours of sequential catheter flush. Accordingly one method for intermittently flushing the catheter comprises steps of reducing the internal volume of the extension tube after a first ~~delay~~ interval, a second ~~delay~~ interval, and a third ~~delay~~ interval where the first residual volume is less than initial volume, the second residual volume is less than the first residual volume. The method can maintain the catheter for 24 hrs and can be repeated for another 24 hours.

Please replace the previously presented paragraph [0014] with the following amended paragraph.

[0014] According to one presently preferred embodiment the present invention, a closed system, such as a fluid locked tubing system, is provided with at least one sealed proximal terminal, which can be a luer receiving valve or cannula receiving septum. The closed system is connectable with, or integral with, at least a portion of an indwelling catheter residing beneath a patient's skin and/or vein. The closed system defines an internal volume and is at least partially filled with flush after a flush maneuver through is injected through at least one proximal terminal by an external flush system such as a syringe. A residual flush volume of flush solution, such a mixture of antimicrobial and anticoagulant (as described in U.S. Pat. No. 6,187,678), remains within the tubing system after a flush maneuver and the aforementioned internal volume defines this residual flush volume. This volume of fluid, in its locked state after the flush maneuver has been completed and enough time has passed for equalization, has generally an equal pressure to the pressure of the blood at the blood-to-flush solution interface of the locked system. According to one aspect of the present invention, the pressure of the residual flush solution is intermittently increased and the fluid advanced by intermittent and progressive reduction of the internal volume of the system. The reduction of the internal volume is preferably achieved by a volume reduction system comprising a volume reducer, which displaces the volume from a more proximal position toward a more distal position so that residual fluid is displaced toward the blood-to-flush solution interface of the catheter lumen. The volume reduction system ~~reducer~~ can be a single reducer, which provides multiple levels of reduction, and which is intermittently activated to achieve progressively a greater level reduction of internal volume. Alternatively, the volume reduction system ~~reducer~~ can be comprised of a plurality of multiple elements such as a

plurality of small clamps, such as pinch clamps with elongated or flattened compressing surfaces, for compressing and thereby reducing the volume of the tube. These elements can be separate and slidable so that they can be conveniently positioned on the tube, depending on tape down considerations, or they can be integral or otherwise connected or connectable to the tube. Alternatively selectable volume reducing elements can be provided as connected or connectable to either or both of the proximal or distal terminals or can be integral with, and/or comprise a portion of the proximal and or distal terminal. As another alternative according to the present invention multiple elements such as clamps may be molded together as a single piece connected by a flexible elongated living hinge for mounting with an extension tubing set so that the tubing remains flexible when the connected elements are mounted with it. The elements are preferably either injection molded separately or together using a suitable medical grade polymer such as polypropylene or nylon, alternatively for greater clarity and to enhance its appearance the elements may be molded of polycarbonate or a polycarbonate- polyester blend may be used. The living hinge can be of the type described in U.S. Pat. No. 5,514,117, which is assigned to the present inventor (the entire contents of which is incorporated by reference as if completely disclosed herein) and marketed by Abbott laboratories under the trade name Lifeshield Connector. The tube is preferably flexible and is preferably comprised of a medical grade polymer, which has known compatibility with medication. For example a short segment of conventional intravenous tubing in wide use as extension sets is suitable for this purpose; however tubing molded with enlarged regions for compression can also be used to reduce the length of the clamps or increase the volume of the displaced flush solution.